

## Maternal Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) in Children

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### ARTICLE INFO

*Article type:*  
Original article

*Article History:*  
Received: 25-May-2014  
Accepted: 12-Jun-2014

*Key words:*  
Attention Deficit  
Hyperactivity Disorder  
Children  
Maternal Anxiety

### ABSTRACT

**Background & aim:** According to the previous studies, anxiety along with some other psychiatric disorders is common among mothers of children with attention deficit hyperactivity disorder (ADHD). Since maternal anxiety affects mother-child interactions, early treatment plays an important role in the prognosis of ADHD in children. This study aimed to determine the relationship between maternal anxiety and hyperactivity in children.

**Methods:** This study was conducted on 112 mothers of ADHD children (aged 6-12 years), selected via convenience sampling from October to December 2012. The subjects lived in districts 2 and 6 of Tehran and were referred to consultation centers. Depression Anxiety Stress Scale 42 (DASS-42) and Swanson, Nolan and Pelham (SNAP-IV) questionnaires were completed by the subjects. Pearson's correlation coefficient was used for the analysis of the relationship between variables.

**Results:** A positive correlation was found between maternal anxiety and children's hyperactivity ( $P=0.05$ ). In fact, high levels of maternal anxiety are accounted for various child-rearing problems such as children's hyperactivity.

**Conclusion:** High levels of maternal anxiety lead to child rearing problems, which in turn cause various disorders such as hyperactivity in children.

► Please cite this paper as:

Mirzaaghasi R, Kohani Y, Baniasadi H, Tara F. Maternal Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) in Children. Journal of Midwifery and Reproductive Health. 2014; 2(4): 233-237. DOI: 10.22038/jmrh.2014.3258

### Introduction

A child's personality and mental values are shaped and developed in the family unit. Family relationships play an important role in an individual's future lifestyle and decisions. Families are responsible for the mental health and morality of individuals. Therefore, problems of any member could affect others' functioning and might in turn lead to family dysfunction.

Interactions between family members could have a significant impact on either decreasing or increasing problems of this small community. However, it is not rational to attribute children's personality disorders and behavioral problems to parents or maladaptation of the family.

It is obvious that parents are highly affected by

their children's ill-temperedness, dysfunctions, and other psychological disorders; these disorders can be recurrent and aggravate children's problems (1). It is believed that mothers' psychiatric disorders may lead to increasing behavioral problems among children; therefore, treatment of these disorders will lead to the alleviation of children's conditions (2). It could be claimed that mothers' affective disorders have a more significant impact on children's behaviors, compared to fathers' conditions (3).

As Sanders (2003) stated, mother and child form a connection, which is of high importance when assessing or treating disorders. Motherhood and child rearing are frequently accompanied by psychiatric diseases. In fact,

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mother's psychiatric conditions influence her role as a mother and negatively affect her child-rearing skills. In other words, maternal psychological conditions are the most important factors for children's behavioral disorders.

Today, regardless of family background, children frequently disobey their parents, cause inconvenience for others, and face interaction problems. At school, they act disorderly in class and are not welcomed by other social groups. They may also suffer from severe problems such as lack of self-esteem and low self-respect, which are common signs of hyperactivity (4-7).

Hyperactivity and Anxiety and Attention Deficit Hyperactivity Disorder (ADHD) are among the most common mental disorders among children and adolescents. Approximately 50% of children's clinical coverage is related to these disorders, which begin before school years and sometimes persist into adulthood. These mental disorders affect one's family life, education, and social relations. Late diagnosis and treatment of these conditions could cause several cognitive disorders during patients' lives (8).

A study on 13-year-old children, whose mothers had high levels of anxiety (since children's pre-school years), showed that family disorders could predict signs of hyperactivity and aggression among children (9). Maternal anxiety is probably associated with impaired mother-child bonding due to primary undesirable experiences; this state could lead to some pathological phenomena such as hyperactivity (10).

Based on the aforementioned points, it could be stated that maternal anxiety and the associated effects play an important role in children's hyperactivity. Therefore, this study aimed to investigate the relationship between maternal anxiety and children's hyperactivity.

## Materials and Methods

This correlational study, with descriptive and analytic objectives, was conducted on 112 mothers, referring to consultation centers in districts 2 and 6 of Tehran from October to December 2012; the sample size was determined based on previously conducted research. The subjects were selected via accessible sampling from 4 centers including Dr.

Khodayee, Sarve Special Center, Dr. Majd, and Dr. Arabgol consultation centers.

The participants completed Depression Anxiety Stress Scale 42 (DASS-42), Swanson, Nolan and Pelham (SNAP-IV), and demographic questionnaires in a scheduled meeting. Inclusion criteria for mothers were as follows: 1) having a hyperactive child, aged 6-12 years; and 2) minimum educational level (high school diploma). Mothers with other psychiatric disorders were excluded from the study.

Data were analyzed using SPSS version 18. Tables, frequency distribution, and mean calculation were used for descriptive statistics and Pearson's correlation coefficient was performed for the analysis of the relationship between variables.

Ethical considerations were taken into account throughout the study; i.e., the subjects willingly participated in the study and were allowed to leave the study at any point they desired. All participants were assured about the confidentiality of the data.

The first used questionnaire was DASS-42 scale, which is a self-report questionnaire developed by Lovibond in 1995. It consists of three scales designed to measure depression, anxiety and stress (11) and each scale contains 14 items. Each item includes the following options: never (0), usually (1) most often (2), and frequently (3). The summative score (0-42) estimates the level of imposed depression, anxiety and stress.

Psychometric properties of this questionnaire were evaluated and confirmed in Iran by Afzali et al. who evaluated the questionnaire on 400 high school students in Kermanshah, Iran (2010).

The second used questionnaire was SNAP-IV scale, which was first developed by three authors (Swanson, Nolan and Polham) in 1980. It was normalized in Iran by Sadrosadat, Hooshyari and Zamani (2005) among 7- to 12-year-old children for the diagnosis of ADHD/hyperactivity.

Factor analysis was applied to evaluate the questionnaire's construct validity. Total reliability was calculated as 0.89, which indicated high reliability of the questionnaire. The subscales' reliability was 0.83 for lack of tension and 0.82 for hyperactivity, which indicated adequate reliability. Items were scored based on a 0-3 grading scale instead of yes/no (0-1)

options. The cut-off point was determined using mean and standard deviation (1.95) (12).

Finally, demographic data including age, medication use, history of psychiatric disorders, mothers' education level and mothers' marital satisfaction were collected in order to gather data related to children and their family conditions; mothers completed all questionnaires.

## Results

The mean age of mothers was 37.25 years. Table 1 shows the mean age of mothers and children. Mothers and children were within the age range of 28-42 and 6-12 years, respectively. Most mothers were 35 to 40 years old and the maximum age of children was 12 years.

**Table 1.** Frequency distribution of mothers' and children' age

Variable	Frequency (%)
<b>Maternal age (years)</b>	
<30	12 (10.7)
30-35	32 (28.6)
35-40	36 (32.1)
40-45	24 (21.4)
>40	8 (7.1)
Sum	112 (100)
<b>Children's age (years)</b>	
6	12 (10.7)
7	8 (7.1)
8	24 (21.4)
9	20 (17.9)
10	16 (14.3)
12	32 (28.6)
Sum	112 (100)

**Table 2.** Frequency distribution of subjects in terms of education and marital satisfaction

Level	Frequency (%)
<b>Education level</b>	
High school	4 (3.6)
Diploma	44 (39.3)
Graduate	4 (3.6)
Bachelor's degree	40 (35.7)
Master's degree	20 (17.9)
Sum	112 (100)
<b>Marital satisfaction</b>	
High	32 (28.6)
Medium	40 (35.7)
Low	40 (35.7)
Sum	112 (100)

Table 2 shows the education level and marital satisfaction of mothers. Most mothers (39.3%)

had a high school diploma and 70% of them reported low to moderate marital satisfaction. They reported low to moderate marital satisfaction.

**Table 3.** Relationship between children's hyperactivity score and maternal anxiety

Level	Frequency (%)
<b>Maternal anxiety</b>	
Normal	56 (50)
Low	16 (14.3)
Medium	12 (10.7)
High	14 (12.5)
Extremely high	14 (12.5)
<b>Children's hyperactivity</b>	
High	64 (57.1)
Medium	40 (35.7)
Low	8 (7.2)
Sum	112 (100)

**Table 4.** Relationship between children's hyperactivity and maternal anxiety, education level and marital satisfaction

	R	P
Maternal anxiety	R= 0.596	P<0.001
Maternal education	R <sub>s</sub> = 0.329	P<0.001
Marital satisfaction	R <sub>s</sub> = 0.268	P=0.004

Table 3 provides descriptive information about maternal anxiety and children's hyperactivity scores. Severity of maternal anxiety was graded as follows: normal, mild, moderate, severe and very severe; anxiety level of most mothers was in the normal range. On the other hand, severity of children's hyperactivity was graded as severe, moderate, and mild. As the results indicated, most children were suffering from severe hyperactivity.

Pearson's correlation coefficient was used for analyzing the relationship between anxiety, education level, marital satisfaction and children's hyperactivity. Children's hyperactivity had a positive relationship with anxiety, education level and marital satisfaction (Table 4).

## Discussion

The main objective of this study was to evaluate the relationship between maternal anxiety and children's hyperactivity. Mothers completed SNAP-IV, DASS-42 and demographic questionnaires. Data were analyzed using Pearson's correlation coefficient as well as descriptive and analytic statistics. A significant

correlation was found between maternal anxiety and children's hyperactivity.

It should be noted that anxiety, as a major threat to mother's sense of security, plays an important role in the quality of mother-child bonding and child's behavioral problems. Previous investigations show that feelings of insecurity and lack of safety are common pathological signs and constant anxiety is one of the main symptoms.

Mothers with high levels of anxiety perceive the world as a dangerous and incurable place. They experience feelings of mistrust, tension, stress and conflict and feel incapable of controlling their surroundings and events. In other words, they always expect the worst to happen and feel threatened.

It seems that when anxiety reaches its high levels, it could negatively affect mothers and children. These mothers cannot efficiently communicate with their children since feelings of anxiety are transmitted to their children due to their inadequacy in parenting.

Based on a study by Yusefi (1388), some characteristics of ADHD were associated with increasing parent/child issues. Moreover, similar to the findings of the current study, ADHD was associated with maternal stress (13). Dewolf (1997) also found that mothers of (pre-school) ADHD children considered their parental efficacy to be less than desirable; this feeling increased the rate of anxiety and depression among them (14).

Costin (2004) reported a significant relationship between children's hyperactivity and maternal anxiety, stress, and depression. According to the mentioned study, ADHD children face higher risks of depression due to parenting inefficacy; findings of Costin's study confirm the results of the present research (15). However, Rey's study (2000) showed no difference between parents of hyperactive and normal children, i.e., no relationship was found between maternal anxiety and children's hyperactivity (16).

A study by Hekmati et al. (2008) showed that families of hyperactive children are affected by the signs and symptoms of children's disorders; therefore, mothers face more problems in these families (20). These findings are in agreement with the present results and previous studies

which have reported higher levels of conflict and lower levels of cohesion in families with ADHD children (17-19).

The study by Hekmati et al. (2008) reported lower cooperation, less sexual satisfaction, stronger support, and more emotional reactions in families with ADHD children, compared to other families (20). In other words, mothers showed less efficient functioning, which led to higher levels of anxiety and stress.

Based on a study by Kashdan (2004) and comparison with other studies, parents are the main cause of conflict, not ADHD children. It seems that psychological problems lead to anxiety and internal conflicts. Consequently, mother's sensitivity to her environment and children is decreased and thus, she is alienated from the family (21, 22).

## Conclusion

High levels of maternal anxiety lead to child-rearing problems, which in turn cause various disorders such as hyperactivity in children. Mothers with ADHD children suffer from increased levels of anxiety due to their concerns and insufficient parenting skills. Since the effects of variables on each other were not studied in this paper, it is recommended that further research be conducted in this field. The main limitation of this study was subjects' unwillingness to complete the questionnaires.

## Conflict of Interest

The authors declare no conflicts of interest.

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